DOCUMENT RESUME

ED 196 207

EC 131 334

AUTHOR

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TITLE

Relating the Capabilities of the Handicapped to the

Human Attribute Requirements of Jobs: User's

Guide.

INSTITUTION

Ohio State Univ., Columbus. National Center for

Research in Vocational Education.

SPONS AGENCY

Bureau of Education for the Handicapped (DHEW/OE).

Washington, D.C.

PUB DATE

79

GRANT

G007603970

NOTE

113p.: For related documents, see EC 131 335-336.

EDRS PRICE

MF01/PC05 Plus Postage.

DESCRIPTORS

*Cisabilities: *Employment: Job Skills:

*Prevocational Education: Secondary Education: *Student Characteristics: Student Evaluation:

Vocational Adjustment

ABSTRACT

The guide is intended to provide educators and potential employers of the handicapped with information on career preparation for the handicapped. The self instructional format is explained to focus on the process of developing work relevant human attributes required for job performance and then relating these requirements to the capabilities of handicapped persons. The guide includes sample instrumentation, illustrations, examples, and analysis from three occupations (general secretary, automotive mechanic, and business data programmer). Guidelines are offered for preparing occupational statements, identifying attribute requirements, selecting survey instrument respondents, developing cocupation by attribute and job activity by attribute survey instruments, and developing attribute by exceptionality survey instruments. (CL)

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User's Guide

RELATING THE CAPABILITIES OF THE HANDICAPPED TO THE HUMAN ATTRIBUTE REQUIREMENTS OF JOBS

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May, 1979



The Materials in this publication were prepared pursuant to a contract with the Bureau of the Education for the Handicapped, U. S. Office of Education, U. S. Department of Health, Education and Welfare. Grantees undertaking such projects under government sponsorship are encouraged to freely express their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Bureau of Education for the Handicapped, U. S. Office of Education position or policy.

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U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

U. S. OFFICE OF EDUCATION
BUREAU OF THE EDUCATION FOR THE HANDICAPPED

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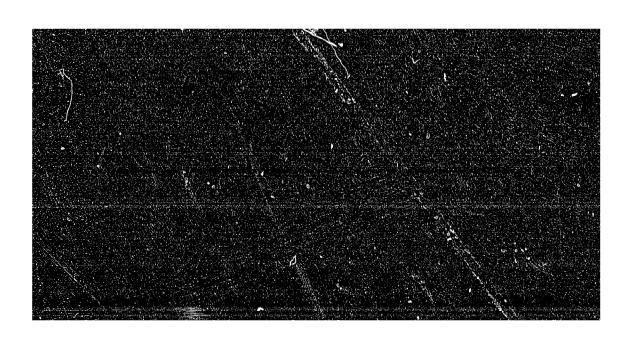
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FOREWORD

Maximizing career opportunities and job satisfaction of handicapped persons involves a careful linkage of career preparation, counseling, and job placement. Although research and development efforts have made strides toward identifying, describing, and assessing individual handicaps and capabilities, there has been a research void in the development of ways to identify and describe relevant behavioral requirements of jobs for the handicapped and to relate their requirements to the capabilities, preparation, and employment of handicapped persons.

One effort undertaken to alleviate the discrepancy between the lack of knowledge on the part of educational personnel and employers about human characteristics or attributes required for performance on specific jobs and the capabilities of the handicapped person is this User's Guide. Its intent is to identify, describe, and illustrate the capabilities of the handicapped to demonstrate the human attribute requirements of jobs. The guide includes sample instrumentation, illustrations and examples from three diverse occupations, and guidelines for (1) generating task lists for jobs, (2) selecting work relevant attributes, (3) identifying appropriate survey respondents, (4) designing surveys, (5) analyzing and interpreting job information, and (6) constructing attribute requirements for jobs and attribute development profiles for handicapped persons.







PREFACE

This is a *User's Guide* designed for use by guidance and counseling personnel, employers and personnel directors, as well as curriculum and instructional personnel working with the handicapped. Its objectives are to provide educational personnel and potential employers serving the handicapped with the skills and a knowledge base for providing career preparation information and extending opportunities information to handicapped persons.

This guide was developed by the National Center for Research in Vocational Education, Special Projects Division, pursuant to a grant from the U. S. Office of Education, Bureau of Education for the Handicapped to illustrate procedures to be used when relating the capabilities of the handicapped to the human attribute requirements of jobs. For purposes of illustration, only three occupations were used. Their selection was predicated on the availability of task inventories developed previously at the National Center for Research in Vocational Education. The three occupations used represented three diverse fields and included survey respondents from three occupations - general secretary, automotive mechanic, and business data programmer.

A number of organizations have contributed to the field testing of data contained in this guide relative to the occupations surveyed. Special appreciation is extended to those





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INTRODUCTION

Purpose and Design of the Guide

The primary purpose of this guide is to serve as a resource to persons concerned with identifying, describing, and assessing the individual capabilities of handicapped persons and relating these capabilities to actual job requirements. This guide has been designed for self-instructional use. It enables the user to better understand the process of developing work relevant human attributes required for job performance, and relating these requirements to the capabilities of handicapped persons.

The content and format of the guide have been designed to accommodate many different levels of understanding and informational needs on the part of curriculum developers for the handicapped, vocational and special education instructors, counselors, and employers concerning human characteristics or attributes required for acceptable performance of specific jobs and the capabilities of handicapped persons to develop the capacity to perform various jobs.

Profiles of the human attribute requirements of the major tasks actually performed on a job, together with descriptions of the present capabilities of handicapped individuals and those capabilities which could be acquired or developed over time, can be used to help direct attentions to potential job options that may be pursued realistically and illustrate work opportunities for which they are qualified. In order to illustrate the aforementioned, the guide includes: sample instrumentation, illustrations, examples, analysis from three diverse occupations, and guidelines for (1) generating task lists; (2) selecting work relevant attributes; (3) iden-

tifying appropriate survey respondents; (4) designing surveys; (5) analyzing and interpreting job information; (6) constructing attribute requirement profiles for jobs, and (7) constructing attribute development profiles for handicapped persons. The design of the guide has been developed to include all procedures necessary to replicate this study and all procedures necessary to further develop task inventories and profiles for occupations and tasks within the occupations for handicapped individuals in systematic and simplistic form.

Audiences and Development of the Guide

This guide is directed at several primary audiences and includes but is not limited to:

- guidance and counseling personnel
- curriculum planners and developers
- · vocational educators
- vocational educators

- employers and personnel directors
- special educators
- rehabilitation counselors
- rehabilitation specialists

This guide should help promote interaction and communication among curriculum developers, guidance and counseling personnel, vocational educators, special educators, rehabilitation personnel, and personnel directors and employers in improved long range articulation of preemployment training, work-study programs, and on-the-job training for handicapped individuals.

Research and development procedures utilized in this study evolved from consideration of three major objectives. They are as follows:

(a) Development of procedures to identify and portray the patterns of human attributes required for job performance

- (b) Identification of the potential development of work relevant human attributes for handicapped persons
- (c) Application of the procedures in three diverse occupations to assess the use and relative merit of this type of procedure for the handicapped

The first objective, development of procedures for identification of the human attributes required for job performance by workers, resulted in a set of procedures for use by agencies and personnel serving the need for guidance, placement, and instruction of the handicapped. Human attribute profiles for each of the key job activities of the occupations selected for study were produced through application of the procedures.

The second objective, identification of the potential development of work-relevant human attributes for handicapped persons, was intended to yield estimates of the potential level of development of the handicapped which might provide benchmark information useful in individual counseling for career preparation and potential employment of the handicapped.

The third objective, application and assessment of the procedures, provided initial estimates of the relative merits and usefulness of the work attribute information for educational and employment decision making through use of simulation techniques and activities.

Topics Covered

The overall purpose of this guide is to serve as a resource reference to persons concerned with researching the guidance and placement needs of the handicapped. The quide covers the following topics:

- Guidelines for identifying key job activities
- Guidelines for identifying key attributes
- Sample instrumentation
- Illustration and profiles of three diverse occupations (Automotive Mechanic, General Secretary and Business Data Programmer)
- Profiles of key task by key attributes across the three occupations
- Profiles of the attributes of the handicapped person used in the procedures
- Sources of information useful in developing attribute profiles for use by personnel working with the handicapped

The guide includes sections covering these topics in addition to the introductory material. Each section is self-contained, which allows for concentration on the particular section most relevant to the user's needs. Section I, Preparing Occupational Statements, is intended to provide a comprehensive approach to developing and writing occupational task statements. Section II, Identifying Attribute Requirements, identifies the method used in determining human attribute requirements of jobs and a sample of the questionnaire used in the methodology.



Section III, Selecting Survey Instruments Respondents, suggests approaches for identifying sample populations for completing Occupation-by-Attribute, Job Activity-by-Attribute, and Survey Instruments. Section IV, Developing Occupation-by-Attribute and Job Activity-by-Attribute Survey Instruments presents information concerning construction of these two instruments and provides an illustration of both instruments. Section V, Developing Attribute-by-Exceptionality Survey Instruments, illustrates the two approaches for obtaining information, from handicapped individuals and those who work with the handicapped, on the capabilities of exceptional individuals to demonstrate the thirty-eight attribute requirements. Section VI, Data Analysis and Developing Profiles, suggests appropriate methods for analyzing the survey instruments and developing profiles from these data. This section also provides an illustration of the three profiles for the Job Activity-by-Attribute, Occupationby-Attribute, and Attribute-by-Exceptionality Survey Instruments using transparencies. Section VII, Summary and Conclusion, provides further information for identified target audiences including guidance and counseling, employer and personnel directors, and curriculum and instructional personnel for using the data collected in the profiling section. Section VIII, Recommendations for Profiling Handicapped Individuals, provides information concerning the use and selection of appropriate survey assessment instruments for handicapped populations.

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Limitations of the Guide

This quide contains only one approach to relating the capabilities of the handicapped to the human attribute requirements of jobs and provides profile analysis for only three occupations. The identification of key attributes may not be acceptable to all quide users, but these attributes have been subjected to empirical assessment and have been found to be the "most acceptable".

The User's Guide cannot be viewed as a panacea for the myriad of problems faced by the handicapped and personnel working with the handicapped toward job procurement. Rather it provides a method for expediting this process.

Finally, the analysis of the profiles for the handicapped population is limited by the extremely small sample size. However, the purpose of the profiling procedure was to describe a procedure, not to define limits of the handicapped individual. Therefore, a small sample size in this context is acceptable.

The procedures at this stage cannot be considered final. Efforts will be exerted to include other methodologies and profiling techniques that could be considered applicable for the handicapped.

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PREPARING OCCUPATIONAL STATEMENTS

The first procedure used to relate the capabilities of the handicapped to the human attribute requirements of jobs was to develop occupational statements. The Dictionary of Occupational Titles (DOT), published by the Department of Labor, revised edition, 1978 is the most comprehensive and accessible source providing job descriptions and lists of major tasks (job activities). The Dictionary of Occupational Titles contains a complete and comprehensive description of well over 25,000 separate occupational titles with as many as 1,000 cross reference titles. For example, just considering the occupation of automotive mechanic (auto. serv.) 620.281, five different entries are noted, including: automobile repair person, automobile-service mechanic, garage person, garage mechanic, and garage repair person. All of these listings would be found under the title of "automotive mechanic" but as defined by the Dictionary of Occupational Titles, all relate to the same function. For additional cross references to this occupation, the reader is referred to Volume II of the Dictionary of Occupational Titles.

Once the occupation has been identified and selected from the <u>Dictionary of Occupational</u>

<u>Titles</u>, it is then necessary to transform the narrative concerning the occupation, which is written in paragraphic form, to conform to standard task inventory structure. An illustration of this procedure is provided in Figure 1 for the occupation of automotive mechanic.

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DICTIONARY OF OCCUPATIONAL TITLES PARAGRAPHIC FORM FOR THE OCCUPATION OF AUTOMOTIVE MECHANIC

AUTOMOTIVE MECHANIC (auto. serv.) 620.281, automobile repairman; automobile-service mechanic; garage man; garage mechanic; garage repairman. Repairs and overhauls automobiles; buses, trucks, and other automotive vehicles; examines vehicle and discusses with customer or AUTOMOBILE-REPAIR-SERVICE SALES-MAN; AUTOMOBILE TESTER: or BUS INSPECTOR nature and extent of damage or malfunction. Plans work procedure, using charts, technical manuals, and experience. Raises vehicle, using hydraulic jack or hoist, to gain access to mechanical units bolted to underside of vehicle. Removes unit, such as engine, transmission, or differential, using wrenches and hoist. Disassembles unit and inspects parts for wear, using micrometers, calipers, and thickness gauges. Repairs or replaces parts such as pistons, rods, gears, valves, and bearings, using mechanic's handtools. Overhauls or replaces carburetor, blowers, generators, distributors, starters, and pumps. Rebuilds parts, such as crankshafts and cylinder blocks, using lathes, shapers, drill presses, and welding equipment. Rewires ignition system, lights, and instrument panel. Relines and adjusts brakes, aligns front end, repairs or replaces shock absorbers, and solders leaks in radiator. Mends damaged body and fenders by hammering out or filling in dents and welding broken parts. Replaces and adjusts headlights, and installs and repairs accessories, such as radios, heaters, mirrors, and windshield wipers. May be designated according to specialty as AUTO-MOBILE MECHANIC, MOTOR: BUS MECHANIC, DIFFERENTIAL REPAIR-MAN: ENGINE-REPAIR MECHANIC, BUS; FOREIGN-CAR MECHANIC: TRUCK MECHANIC. See volume II for additional titles.

As illustrated, the occupation of automotive mechanic was extracted exactly as written from the <u>Dictionary of Occupational Titles</u>. In order to conform to standard task inventory format to develop questionnaires, job activity statements must be rewritten in present tense, third person. All sentences containing negative verbs must be rewritten to conform to present tense eliminating the negative. For example, suppose one of the job activities under the automotive mechanic read:

May or may not remove unit, such as engine, transmission, or differential, using wrenches and hoist.

This statement would be rewritten to read,

Remove unit, such as engine, transmission, or differential, using wrenches and hoist.

Basically, seventeen job activities can be developed from the occupation of automotive mechanic as illustrated in Figure 2.

Figure 2

JOB ACTIVITY STATEMENTS IN STANDARD TASK INVENTORY SENTENCE STRUCTURE FOR THE OCCUPATION OF AUTOMOTIVE MECHANIC

- Examine vehicle and discuss with customer or automobile-repair-service salesman, automobile tester, etc., nature and extent of damage or malfunction.
- Plan work procedure, using charts, technical manuals, and experience.
- Raise vehicle, using hydraulic jack or hoist, to gain access to mechanical units bolted to underside of vehicle.

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Figure 2 (Cont'd)

- Remove unit, such as engine, transmission, or differential, using wrenches and hoist.
- Disassemble unit, and inspect parts for wear using micrometers, caliper, and thickness gauges.
- Repair parts such as pistons, rods, gears, valves, and bearings using mechanic's hand-tools.
- Overhaul carburetors, blowers, generators, distributors, starters, and pumps.
- Replace carburetors, blowers, generators, distributors, starters and pumps.
- Rebuild parts, such as crankshafts and cylinders blocks, using lathes, shapers, drill presses, and welding equipment.
- Rewire ignition system, lights, and instrument panel.
- e Reline and adjust brakes.
- Align front end.

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- Repair or replace shock absorbers.
- Solder leaks in radiator.
- Mend damaged body and fenders by hammering out or filling in dents and welding broken parts.
- Replace and adjust headlights.
- Install accessories, such as radios, heaters, mirrors, and windshield wipers.

As seen in Figure 2, all of the specific activities listed within the occupation of automotive mechanic, Figurel, were rewritten to form one simple task statement. In other words, it may be necessary to make one complete task statement from complex or compound sentences

contained in a Dictionary of Occupational Titles listing. Basically, the same procedure can be followed for any occupation listed in the Dictionary of Occupational Titles. Task or activity statements written in an inventory format becomes the basis for developing the field test instrument.

IDENTIFYING ATTRIBUTE REQUIREMENTS

An attribute, within this methodology, has been defined as any quality or characteristic that can be ascribed to a person. It was within this context that attribute statements were selected and organized into three categorical areas: Cognitive Abilities, Psychomotor Abilities, and Sensory Capacities. Leach broad categorical heading has been defined as follows.

A. COGNITIVE ATTRIBUTES

The qualities of knowing; including both awareness and judgment involving perceiving, recognizing, remembering, conceiving, reasoning, thinking creatively, etc. A general characteristic of cognitive attributes is a relatively high state of consciousness or awareness of one's behavior.

Twenty attributes were developed under this category which demonstrated a relationship to the cognitive processes.

B. PSYCHOMOTOR ATTRIBUTES

Characteristics involving bodily or muscular movements, usually in coordination with the sensory processes.

Six categories appeared in the original Attribute Requirement Inventory developed by Neeb, Cunningham, and Tuttle, Center for Occupational Education, North Carolina State University. However, three categories, General Vocational Capabilities, Interests, and Needs were deleted since these categories could be considered something other than human characteristics.



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Twelve attributes were developed under this category which showed a relationship to the psychomotor processes.

C. SENSORY CAPACITY ATTRIBUTES

Characteristics involving the use of sense organs.

Six attributes were developed under this category which showed a relationship to the sensory capacities.

For purposes of this methodology, each of the thirty-eight attributes were operationalized within the following definitions indicated in Figure 3.

FIGURE 3
ATTRIBUTE DEFINITIONS AND EXAMPLES

COGNITIVE ATTRIBUTES

Attribute Attribute Definition Exploses of Attribute Activities 1. Closure organize a disorganized or an obscure visual field into a single impression, with or without knowledge of any of the specific forms contained in the field. Exploses of Attribute Activities example structure/patterns using an instrument; inspect or investigate shapes/designs for background detail.

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COGNITIVE ATTRIBUTES

Attribute	Attribute Definition	Examples of Attribute Activitie
Form Perception	identify relevant details in objects or in graphic material; make fine visual comparisons; and discriminate among characteristics such as shapes and shadings of figures or objects and widths and lengths of lines.	paint designs on surfaces; compare finite objects for similarities and differences.
Perceptual Speed	rapidly identify details in verbal or tabular material and rapidly perform simple visual discrimination tasks; discriminate between symbols, detecting differences in copy, etc.	check a proof against the original copy; transpose information from printed matter into a machine.
Spatial Scanning	identify or detect objects quickly from a wide or complicated visual field.	lock for objects on a large visual surface; identify numbers ending in five in a table, quickly
Spatial Orientation	identify area patterns and orient one- self in relation to the position and form of surrounding objects.	conduct a tour; drive an automobile.
Visualization	identify area patterns in two or three dimensions and convert them into other area patterns; demonstrate the ability to visualize objects of two or three dimensions; and analyze outlines in geometric forms.	use a mirror to visualize and manipulate objects; sketch design for a pattern.
	Form Perception Perceptual Speed Spatial Scanning Spatial Orientation	Perception identify relevant details in objects or in graphic material; make fine visual comparisons; and discriminate among characteristics such as shapes and shadings of figures or objects and widths and lengths of lines. Perceptual rapidly identify details in verbal or tabular material and rapidly perform simple visual discrimination tasks; discriminate between symbols, detecting differences in copy, etc. Spatial identify or detect objects quickly from a wide or complicated visual field. Spatial orientation identify area patterns and orient oneself in relation to the position and form of surrounding objects. Visualization identify area patterns in two or three dimensions and convert them into other area patterns; demonstrate the ability to visualize objects of two or three dimensions; and analyze outlines in

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COGNITIVE ATTRIBUTES

A	ttribute	Attribute Definition	Examples of Attribute Activities
7.	Number Facility	calculate numberical results rapidly and accurately using operations, such as addition, subtraction, multiplication, and division; count; plot on numbered coordinates; etc.	compute scale representations of objects; add and subtract debits and credits; compute the answer to an arithmetic problem.
8.	Memory	reproduce/recall pertinent learned information perfectly within a specified period of time (one minute to eight hours).	give a speech from memory; re- remember dispated addresses.
9.	Verbal Comprehen- sion	define the meanings of words and the ideas associated with them, and use them effectively; interpret language, identify relationships between words, and deduce meanings of whole sentences and paragraphs.	review written communication; pre- pare correspondence; write an ar- ticle; prepare a presentation.
10.	Grammar	utilize forms and structures of words and their general arrangement in phrases and sentences.	check a manuscript; read printed material for accuracy/correctness.
11.	Spelling	use letters proprely to form words; distinguish between correctly spelled and misspelled words.	check typed material; read printed material for accuracy/correctness; prepare a paper.

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Attribute definition

Examples of Attribute Activities

12. Expressional Fluency translate ideas into words rapidly, especially in oral or written exchange. Expressional fluency differs from ideational fluency (below) in that expressional fluency does not involve coming up with ideas (as does ideational fluency) but, rather, the verbal expression of these ideas.

question an individual; respond to questions rapidly; write a report.

13. Ideational Fluency

express creative ideas rapidly about a given topic where quantity rather than quality of ideas is stressed (for example, producing as many ideas as possible about a given topic in five minutes).

throw out ideas for consideration; give suggestions for a new mailing strategy; suggest style changes in products/good.

14. Sensitivity to Problems

identify practical problems (example; improvements that could be made in electrical appliances); deficiencies in courses of action or organizational plans (example; why a road should be repaved when it would have to be torn up in the near future to install new sewer pipes); or recognize implications of activities (example; if the activity is building a dog house, the ability to infer that the entrance must be large enough to accommodate the dog, etc.).

anticipate problems that could arise on a trip; investigate decreasing production of products/goods.

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Attribute

Attribute Definition

Examples of Attribute Activities

15. Deductive Reasoning

examine given premises and reason those premises to their necessary conclusion. (Example; given: "All holidays are paid and no Sundays are paid", the ability to deduce that "No Sundays are holidays".) solve a complex problem; solve an arithmetic/mathematical problem.

16. Inductive Reasoning

identify/express/write general concepts (giving structure and meaning to the information) from given specific sets of information; that is, produce a general concept, principle or rule to explain a set of specific instances. This factor is tested for by requiring the examinee to derive a principle from a number of particular instances. (Example; given the nonsense syllables ABC, MNO, XYZ, PQS, GHI, to discover that POS is different from the others. since the rule for the formation of the others is alphabetical order.) Note basic differences and relationships among symbols, figures, and figure patterns (usually measured through the use of figure diagrams arranged according to some principle).

decode a secret message; develop a theory to explain research findings.



COGNITIVE ATTRIBUTES

		COGNITIVE ATTRIBUTE	5
	Attribute	Attribute Definition	Examples of Attribute Activities
17.	Originality	produce/express responses or ideas which are either clever or uncommon. Example; produce clever titles to story plots or produce novel consequences of a hypothetical situation (such as what if everyone were blind)	think of unusual names for products; produce a new title for a program; think of novel ways to make money.
18.	Social Intelli- gence	identify/examine/interpret correctly behavioral information obtained through friendly interaction; identify the behavioral indicators of attention, thoughts, desires, moods, emotions, intentions, etc. (behaviors as gestures, postures, actions, expressions, voice inflections, etc.)	work with senior citizens; vary selling approach according to customer reaction; supervise sub-ordinates.
19.	Aesthetic Judgment	analyze/determine the compositional organization of art objects on the basis of considering differences in unit, proportion, form, color, and design.	assess the quality of a design; determine the value of antique artifacts.
20.	Musical Aptitude	combine sensory, psychomotor, and cognitive capabilities necessary to produce musical expression (with voice or instrument). These capacities include using the sense of pitch, rhythm, time, and tonal memory.	keep in tune/time with musical notes; play a melody on a musical instrument; sing a song in a choral group.

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PSYCHOMOTOR ATTRIBUTES

	Attribute	Attribute Definition	Examples of Attribute Activities
21.	Control Precision	adjust the position of a control mechanism (such as joysticks, levers, pedals, rudders, etc.) using rapid, precise, controlled muscular movement.	place in position a building section; operate a lever to control movement of a vehicle.
22.	Multilimb Coordin- ation	use more than one limb (both hands, both feet, or hands and feet) si-multaneously, in coordinated manner.	operate manual components of in- struments; participate in (recre- ational activities) active sports.
23.	Reaction Time	respond rapidly to a stimulus when it appears.	correlate movements with time, quickly; avoid a falling object.
24.	Eye-Hand Coordin- ation	make rapid and accurate hand move- ments in coordination with visual stimuli. This attribute is tested by requiring the examinee to place dots in small circles as rapidly as possible.	assemble assorted designs into a construct; connect parts into an apparatus; lay a foundation.
25.	Manual Dexterity	make rapid and accurate arm-hand movements in manipulating fairly large objects.	wrap packages; adjust appliances/ apparatus; manipulate parts.
26.	Finger Dexterity	manipulate precisely small objects with the fingers.	manipulate small/fine parts; assemble intricate parts.

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PSCYCHOMOTOR ATTRIBUTES

·	Attribute	Attribute Definition	Examples of Attribute Activities
27.	Arm-Hand Steadiness	make precise arm-hand movements and maintain steadiness while making these movements, where strength and speed are unimportant. Also, minimize movement while the arms and hands are in a set position.	to another container.
28.	Explosive Strength	apply a maximum amount of muscular force through one or more short bursts of effort.	thrust objects with force; drive an object into the ground.
29.	Static Strength	exert considerable force against external objects for a brief period, as in lifting, pushing, pulling, squeezing, carrying, etc.	transport materials from one place to another; unload goods from a conveyor.
30.	Dynamic Strength	exert force repeatedly or continuously over time so as to move or support the body. Muscular endurance and resistance to muscular fatigue are important in this attribute.	emplace screws using hand tools; perform strenuous exercises.
31.	Body Equilibrium	orientation when balance is threat-	paint from a ladder; walk a straight line; climb a tree; walk across one end of a room to the other end.

PSYCHOMOTOR ATTRIBUTES

	Attribute	Attribute Definition	Examples of Attribute Activities
32.	Stamina	exert the body through continuous effort over an extended period of time (heart endurance).	perform physical exertion for a prolonged/extended period of time.
		SENSORY CAPACITIES	
	Attribute	Attribute Definition	Examples of Attribute Activities
33.	Near Visual Acuity	identify and discriminate visual de- tall at normal reading distance or less.	proofread written materials; carve small objects; make a cut in a solid object.
34.	Far Visual Acuity	identify/examine/specify details at distances beyond normal reading distance.	search for materials in a maze from a distance; read house numbers from a distance (while moving materials from one place to another); watch for pedestrians.
35.	Depth Perception	determine and discriminate distances such as those determined from the observer along the observer's line of vision, from the front to the back of an object so that it is seen three dimensionally, etc.	move an object with a larger mechan- ical device; approach a car within a safe distance.

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SENSORY CAPACITIES

	Attribute	Attribute Definition	Examples of Attribute Activities
36.	Color Discrimin- ation	identify and distinguish color and similarities or differences among colors; identify harmonious or contrasting color combinations, or match colors adequately.	choose color schemes; mix shades or paint.
37.	Auditory Acuity	identify relevant sound cues and discriminate between sounds in terms of their intensity, pitch or tonal quality.	listen for different sounds; take messages over the telephone; tune instruments.
38.	Tactual Discrimin- ation	identify and discriminate among characteristics of objects (such as size, shape, texture, etc.) through the use of touch.	examine an object by feeling for defects; model a small artifact.





SELECTING SURVEY INSTRUMENTS RESPONDENTS

Survey instruments respondents should include workers and those individuals who supervise these workers in order to provide a greater diversity in obtaining perceptions from individuals concerning their jobs and the human attributes required to perform their jobs. The following criteria could be used in selecting survey participants:

- a. The organizations, agencies, or businesses should be in operation for at least two years.
- b. Respondents should represent a cross-section of the same type of organizations, agencies or businesses. For example, several organizations, agencies, or businesses should be selected which employ various types of welders.
- c. Respondents should be capable of completing the survey instruments within one week.
- d. Respondents should be selected who represent a diversity of experience within the same type of occupation.
- e. Respondents should represent a balance between workers and those who supervise workers within the same occupation.
- f. Selected organizations, agencies, or businesses should represent a diversity of occupations within the single entity.
- g. Respondents selected should be willing to complete both the Occupation-by-Attribute Survey Instrument and the Job Activity-by-Attribute Survey Instrument.

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The criteria listed are only suggested guidelines to follow in identifying and selecting the survey instrument respondents.

Although no ideal sample size is recommended, the overall number of survey instrument participants for both instruments should not exceed twenty. The ratio of supervisors to workers should be one to three. Once selected and identified, survey instrument participants should be informed as to the purpose of the survey, which is to provide needed information to counselors, teachers, and others so they can assist handicapped individuals in determining their occupational plans or anticipating employment requirements and preparation.



DEVELOPING OCCUPATION-BY-ATTRIBUTE AND JOB ACTIVITY-BY-ATTRIBUTE SURVEY INSTRUMENTS

Two instruments were developed for use in obtaining information from knowledgeable and skilled workers and supervisors within a given occupation and include an *ccupation-by-Attribute Survey Instrument and Job Activity-by-Attribute Instrument. The Occupation-by-Attribute Survey Instrument contains the listing of the thirty-eight attributes as indicated in the section covering "Preparing Occupational Statements". This instrument is illustrated in Figure 4.

As indicated, each of the thirty-eight attributes is listed with a set of numbers 0 to 7 following This instrument is used to rate the importance of and need for each of the thirty-eight attributes to a given occupation. The Occupation-by-Attribute Survey Instrument is concerned only with the degree to which demonstration of an attribute is important to a given occupation and is not concerned with specific job activities within the occupation. The complete survey instrument booklet for the occupation of automotive mechanics is contained in Appendix A.

The Job Activity-by-Attribute Survey Instrument is concerned with assessing the degree to which demonstration of a particular attribute is important to specified job activities of a given occupation. An illustration of the Job Activity-by-Attribute

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Survey Instrument similar to the Occupation-by-Attribute Survey Instrument is provided in Figure 5.

Note: The 0 - 7 scale provides eight levels degrees to which demonstration of an attribute is required to perform a respective occupation or job activity within the occupation. O designates not required and 7 designates that demonstration of this attribute is required to a very high degree. The numbers 1, 2, 3, 4, 5, and 6 provide levels of degrees to which demonstration of an attribute is required to perform a respective occupation of job activity within the occupation between the two extremes 0 and 7.

Again, each of the thirty-eight attributes is listed with the same set of numbers 0 to 7, following each. However, in this instrument, consideration is given to rating each job activity within the occupation. The complete survey instrument is contained in Appendix B for the occupation of automotive mechanic, and is provided for illustration purposes only. Overall administration of the Occupation-by-Attribute Survey Instrument takes approximately thirty to forty-five minutes depending on the particular respondents. The first fifteen minutes should be spent becoming familar with the definition of the attribute contained in the definition booklet. The Job Activity-by-Attribute Survey Instrument taken approximately one hour to one hour and thirty minutes depending on the number of activity statements within the occupation. It is not necessary to complete both survey instruments within the same time frame, but both instruments should be completed within one week. If survey instruments are mailed to survey respondents, a letter of explanation should accompany the instruments.

This same procedure can be used when developing any type of occupational survey instrument. Separate survey booklets should be constructed for the Occupation-by-Attribute Survey Instrument and the Job Activity-by-Attribute Survey Instrument. Each survey instrument should be accompanied by a definition booklet containing the definitions of the human attribute requirements of jobs with examples of each attribute. The definition booklet is contained in Appendix C.

Figure 4

Occupation-by-Attribute Survey Instrument

Sample Occupation: Box Builder

Kating Scale
To perform this occupation,
demonstration of this attribute is
0 Not Required
1 Required to a very minimal degree
2 Required to a minimal degree
3 Required to a low moderate degree
4 Required to a moderate degree
5 Required to a high moderate degree
6 Required to a high degree
7 Required to a very high degree

	ATTRIBUTES			R	AT]	NG				ATTRIBUTES			RĀŢ	IN	J	18.		-		ATTI	RIBUTES			R	NTI.	ĪĞ		É,
λ.	Cognitive Attributes					1		В.	P	Psychomotor Attribut	es						C		Sensory	e Territory		tr	ibı					
1.	Closure	Ō	1	2	3 4	5	6 7	21.	C	Control precision	0	1 2	3	4	: 5 6	7	1 33	į,	Near vi	gual	anui tu	٨	1	7	3 4	5		7
2.	Form perception	0	1	2	3 4	5	67			Multilimb coordina-	0								Far vis						, , } 4	saT tari		•
3.	Perceptual speed	٥ ٥	1	2	3 4	5	6 7			tion		*\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		•	-				Depth p						3 4			-
	Spatial scanning	0	1	2	3 4	5	6 7	23.	R	Reaction time	0 .	2	3	4	6	7			Color d						3.4			
	Spatial orientation	-		_			6 7	24.	Ē	Eye-hand coordina-	0	2	3	4	6	7.			tion		wintin		=	•		-	¥ . 1	
er of their	Visualization	-	:	. – .	-) -		6.7			Lion	'		 				37	. /	Auditor	y acu	ítv	0	1	2	4	5	6 7	l
5	Number facility		_	_			6 7			Manual dexterity			3						Tactual			_	_	2		_	6 7	
	Memory						6 7			Finger dexterity			3				1	٠.			i i	·						
	Verbal comprehnsion	-		_	-,		6 7	1 .		Arm-hand steadiness	0	. 2	3	4	6	7				. 4			:					
	Granmar						6 7			Explosive strength	0.						l					1						· .
	Spelling						6 7			Static strength	0 .																	
	Expressional fluency						6.7			Dynamic strength			3													À		. · - · ·
	Ideational fluency	-				-	67			Body equilibrium	0]				_	-	.											
14.	Sensitivity to problems	')	1	Z :.	34	. د .	67	32.	Si	Stamina	0]	. 2	3	4 :	6	7	-	grad										
15.	Deductive reasoning	0	1	2	3 4	5	67																٠.,		1		•	
16.	Inductive reasoning	0	1	2	3 4	5	6 7	ļ · .									ŀ				5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				1			
	Originality	0	1.	2	3 4	5	6.7].								i v									Ē	! !		3
	Social intelligence	Ĵ	1	2	4	5	6.7		,										,		1 .		1	t,		٠.		
T 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Aesthetic judgment)	1	2 ;	3 4	5	67									, ·		1	:		e. Zamank						٠.	
20.	Musical aptitude	Ĵ	1	2 :	3 4	5	67							14 1		:	1	;							نواغ د			

Job Activity-by-Attribute Survey Instrument

Sample Occupation: Box Builder

Job Activity: Rep ace and adjust

nuts and bolts.

latir	q	CA.	ė	
n	-			3

To perform this job activity, demonstration of this attribute is

- 0 Not required
- 1 Required to a very minimal degree
- 2 Required to a minimal degree
- 3 Required to a low moderate degree
- 4 Required to a moderate degree
- 5 Required to a high moderate degree
- 6 Required to a high degree
- 7 Required to a very high degree

	AMMOTORMICTORMA	DAMTNA				<u> </u>
. :	LUTIVIDATED A	RATING	ATTRIBUTE	DAMTNA	LOWEY OF MARK	A TEXTS
			115 117 10 100	MITINA	Allkiduil	o RATING
	A CONTRACTOR OF THE STATE OF TH					
		•	and the state of t			

A. Cognitive Attributes								e y	
1. Closure	0	1	2	3	4	5	6	7	
2. Form perception								7	
3. Perceptual speed	0					_	_	_	
4. Spatial scanning		_	-	3	_	_	_		
5. Sptial orientation							1 '	7	
6. Visualization		5 1		3					
7. Number facility								7.	j.
8. Memory								7	
9. Verbal comprehension								7	
10. Grammar				3					
11. Spelling		_	_	_	_			7	ď.
12. Expressional fluency			1 -					7	
13. Ideational fluency						-		7	
14. Sensitivity to								7	
problems			Ξ.			-:	٠.		
15. Deductive reasoning	Ō	1	2	1	4	5	6	7	
16. Inductive reasoning				3					ir t
17. Originality	0								
18. Social intelligence		,		3		. 1	-		
19. Aesthetic judgment			P 7.					7	
Tall the second of the fill with the		-5		, Ž		. T	₹.	· * " :	

B. Psychomotor Attributes

21. Control precision	0	1	2	3	4	5	6	7
22. Multilimb coordina-	0	ī	2	3	4	5	6	7
tion					-			į.
23. Reaction time	0	1	2	3	4	5	6	7
24. Eye-hand coordina-		1						
tion		-					r Sys	
25. Manual dexterity	Q	1	2	1	4	5	6	7
26. Finger dexterity	0	1	2	3	4	ŗ	6	7
27. Arm-hand steadiness	0]	2	3	4	5	6	7
28. Explosive strength	0	1	2	3	4	5	6	7
29. Static strength	0	1	2	1	4	5	6	7
30. Dynamic strength	0	1	2		4	5	6	7
31. Body equilibrium		1		6				
32. Stamina			2					

C. Sensory Capacity Attributes

- 33. Near visual acuity 0 1 2 3 4 5 6 7 34. Far visual acuity 0 1 2 3 4 5 6 7 35. Depth perception 0 1 2 3 4 5 6 7 36. Color discirmina 0 1 2 3 4 5 6 7
- tion
 37. Auditory acuity 0 1 2 3 4 5 6
- 38. Tactual discrimi- 01234567 nation

20. Musical aptitude

DEVELOPING ATTRIBUTE-BY-EXCEPTIONALITY SURVEY INSTRUMENTS

The next procedure used in relating the capabilities of the handicapped to the human attribute requirements of the job was to develop two Attribute-by-Exceptionality Survey Instruments. The purpose of developing these two survey instruments was twofold: (a) to have knowledgeable vocational counselors, rehabilitation counselors, specialists, and/or individuals who work directly in the counseling and/or placement of individuals with handicapping conditions at the secondary, post secondary, or sheltered workshop environment respond using their best judgment of the clients with whom they directly work regarding the capabilities of these individuals to demonstrate the thirty-eight attributes and (b) to have handicapped individuals who are students and/or clients of vocational counselors, rehabilitation counselors, specialists, and/or teachers respond using a self-assessment procedure concerning their ability to demonstrate the thirty-eight attributes. The two instruments were similar to the Occupation-by-Attribute Survey Instrument previously illustrated but with the following exceptions:

- (a) "requirements of demonstrating" the attribute were changed to "capable of demonstrating the attribute.
- (b) modification was made in the seven point rating scale to include a rating for (yes, do differ, no, do not differ) with respect to a handicapped person's ability to demonstrate a given attribute.

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(c) The Attribute-by-Exceptionality Survey Instrument for the handicapped sample contained only the examples of the attribute activities whereas the Attribute-by-Exceptionality Survey Instrument for those individuals working with handicapped persons contained the attribute statements with an accompanying definition booklet.

A partial illustration of each instrument is provided in Figures 6 and 7. The complete instruments appear in Appendix D and Appendix E .

In order to clarify the narrative examples of attribute activities, each of the thirty-eight examples of attribute activities was illustrated for the handicapped person. Therefore, handicapped persons had the opportunity to determine whether or not they were capable of demonstrating the narrative example of the attribute activity or capable of demonstrating the pictorial representation of the same attribute. An illustration of a narrative activity statement and an illustration of the example of the attribute activity is presented in Figure 8. The complete illustration booklet is contained in Appendix F and is used in conjunction with the Attribute-by-Exceptionality Survey Instrument for handicapped persons.

PARTIAL ILLUSTRATION OF ATTRIBUTE-BY-EXCEPTIONALITY SURVEY INSTRUMENT FOR INDIVIDUALS WORKING WITH HANDI-CAPPED POPULATIONS

Rating Scale

Persons with this handicapping condition with whom you work, generally

O are not capable of demonstrating this attribute

l are capable of demonstrating this attribute to a very minimal degree

2 are capable of demonstrating this attribute to a minimal degree

3 are capable of demonstrating this attribute to a low moderate degree

4 are capable of demonstrating this attribute to a moderate degree

5 are capable of demonstrating this attribute to a high moderate degree

6 are capable of demonstrating this attribute to a high degree

7 are capable of demonstrating this attribute to a very high degree

Yes/No Persons with this handicapping condition (Yes, do differ - No, do not differ) from persons who are non-handicapped in the ability to demonstrate this attribute.

						-							. .		
	A.	Cognitive Attribute		0 1	. 2	3	4	5	6	7	Y	N	e.		
	1,	Closure	() 1	2	3	А	5	6	7	V	M			
ě	ă e	Form perception	í)]	•	3	7≇ ./\	ر ا	V Ž	7	A.	F4 TA			
,	· · · · ·		,	/ <u>+</u>	Z A	-J	7	ر	0	1	*				1
	Á	rercehrdar speed	ţ) 1	<u>Z</u>	ڙ	4	5	6	7	Y	N			
	4.	Spatial scanning	(1	2	3	4	5	6	7	Y	Dec		,	
	5.	Spatial orientation	1	1	9	ą	. <u>,</u>	Ē	ć	7	v.	9.7			
	6	Visualization													
			(1											
	1.	Number facility	(1	2	3	4	5	6	7	γ.	N			
	8.	Memory	ſ	1	.)	Ž	A	Ē	e E	P)	± U	17			
		Verbal comprehension													
	. 10	AGINGI COMPIGURION	Ĺ	1	Z	3	4	5	6	7	Y	N			
	10.	Grammar	0	1	2	3.	4	5	6	7	Y	N			
					-	-	•		9	'	*	44			
							3								

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PARTIAL ILLUSTRATION OF ATTRIBUTE-BY-EXCEPTIONALITY SURVEY INSTRUMENT FOR HANDICAPPED POPULATIONS

Rating Scale As an individual with a handicapping condition, I am

0 not capable of demonstrating this attribute

l capable of demonstrating this attribute to a very minimal degree 2 capable of demonstrating this attribute to a minimal degree

3 capable of demonstrating this attribute to a low moderate degree 4 capable of demonstrating this attribute to a moderate degree 5 capable of demonstrating this attribute to a high moderate degree

6 capable of demonstrating this attribute to a high degree

7 capable of demonstrating this attribute to a very high degree

Persons with this handicapping condition (Yes, do differ - No, do not YES/NO differ) from persons non-handicapped in the ability to demonstrate this activity.

			•
	Examples of Attribute Activities	Rating	
1	look for hidden detail in pictures; look at designs for background detail in wallpaper; solve a puzzle	0 1 2 3 4 5 6 7 Y N	CLOSURE -
2	paint designs on surfaces; compare objects for similarities and differences; compare pictures of a landscape; paint a design on a fire hydrant	0 1 2 3 4 5 6 7 Y N	FORM PERCEPTION
3 -	check a proof against the original copy; charge information from printed matter into a machine	0 1 2 3 4 5 6 7 Y N	PERCEPTUAL SPEED
4	<pre>lcok for objects on a large surface; identify quickly numbers ending in a five in a table</pre>	0 1 2 3 4 5 6 7 Y N	SPATIAL SCANNING
5	conduct a tour; drive a car; ride a bike; swim in an ocean; climb a mountain	0 1 2 3 4 5 6 7 Y N	SPATIAL ORIENTAION
1/6	87		



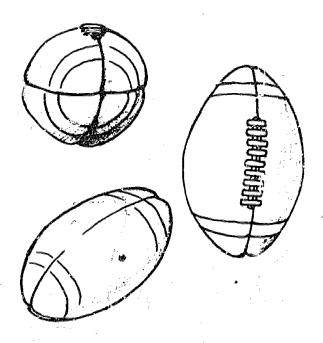


ILLUSTRATED VERSION OF ATTRIBUTE-BY-EXCEPTIONALITY SURVEY INSTRUMENT FOR HANDICAPPED INDIVIDUALS

Example of Attribute Activities

use a mirror to place objects; sketch designs for a pattern; arrange furniture

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The format and structure of the Attribute-by-Exceptionality Survey Instrument for the handicapped population is designed for use by all areas of exceptionality. This includes use by those individuals with severely limited reading abilities. For those individuals with limited or severe visual impairments, each example of an attribute activity is read aloun to the individual responding to a self-assessment and the response is circled on an answer sheet.

With respect to the design of the Attribute-by-Exceptionality Survey Instrument for counselors, teachers, rehabilitation specialist, etc., at least two individuals within a given profession should have knowledge of the capability of the handicapped individual. Professional assessment should be predicted on the person's knowledge of the handicapped individual either through test scores, daily interaction, and observation of work evaluation/work adjustment situations, and other evaluation data.

Overall administration of the Attribute-by-Exceptionality Survey Instrument for those individuals working with a handicapped individual takes approximately twenty to thirty minutes. The self-assessment survey instrument completed by the handicapped individual takes approximately thirty to forty-five minutes depending on the nature and severity of the handicap and the individual responding.

DATA ANALYSIS AND DEVELOPING PROFILES

As indicated in the sections entitled "Developing Occupation-by-Attribute and Job Activity-by-Attribute Survey Instruments" and "Developing Attribute-by-Exceptionality Survey Instruments," the ultimate outcome of all procedures is to relate the capabilities of the handicapped to the human attribute requirements of jobs. In order to accomplish this objective, the following procedures are undertaken.

Instrument Data Analysis

In both instruments, Occupation-by-Attribute and Job Activity-by- Attribute Survey Instruments, data are analyzed by use of median scores. That is, median scores evenly divide the distribution of scores and are more amenable to extreme scores. With respect to the Attribute-by- Exceptionality Survey Instrument, again, median scores should be determined from the two sets of raw scores provided by those two individuals working with a handicapped individual and the raw score from the individual self-assessment rating. This single score becomes the median score for developing the profile sheets.

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Profile Development

Attribute requirements are first identified by individuals imployed within various occupational areas, and the capability of handicapped individuals to demonstrate the thirty-eight attributes are defined and analyzed. Then profiles can be constructed to determine the degree to which congruency can be established in relating the two by means of a comparative "overlay" process. These profiles represent the median ratings of the respondents from the data analysis.

Profile can be constructed for any occupational area using data from the Occupationby-Attribute Survey Instrument. An illustration for three diverse occupational areasautomotive mechanic, business data programmer, and general secretary--is provided in Figure 9, 10, and 11. Profiling the attribute requirements, vis-a-vis the occupation only, provides a more holistic approach to perceived attribute requirements without differentiating between what specific job activities may be performed given certain occupational requirements relative to a particular agency, organization, or firm. In other words, there may exist certain positions within businesses, industries, or labor organizations whose requirements for a particular job do not necessarily correspond to those requirements within the Dictionary of Occupational Titles. It is necessary, therefore, to know generally what attribute requirements may be needed in order to perform tasks within a given occupation.

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Profile of Human Attribute-by-Occupation

Occupation: Automotive Mechanic

Hu	man Attributes	Rating Scale
<u>A.</u>	Cognitive Attribute	
1.	Closure	01234567
2,	Form Perception	01234567
3.	Porceptual Speed	01234/567
4.	Spatial Scanning	01234567
5.	Spatial Orientation	01234567
6.	Visualization	01234567
7.	Number Facility	01234557
8.	Memory	01234567
9.	Verbal Comprehension	01234567
10.	Grammar	01234567
11.	Spelling	01234567
12.	Expressional Fluency	01234567
13.	Ideational Fluency	023567
14.	Sensitivity to Problems	012345>67
15.	Deductive Reasoning	0
38 16.	Inductive Reasoning	01234567
17.	Originality	01234567
18.	Social Intelligence	01234567
19.	Aesthetic Judgment	0134567
20.	Musical Aptitude	01234567
- • •	Musical Apelicade	
В.	Psychomotor Attribute	•
21.	Control Precision	01234567
22.	Multilimb Coordination	012345-+-67
23.		01234567
24.	Reaction Time	0123456
25,	Eye-hand Coordination	01234567
26.	Manual Dexterity	01234567
27.	Finger Dexterity Arm-Hand Steadiness	01234567
28.	Explosive Strength	01234567
29.	Static Strength .	0123567
30,		01234567
31.	Dynamic Strength Body Equilibrium	0===1==================================
32,	Stamina	01234557
J. ,	Scamina	0133333
<u>C.</u>	Sensory Capacity Attribute	
33.	Mear Visual Acuity	01234567
34.	Far Visual Acuity	01234567
35.	Depth Perception	01234567
36.	Color Discrimination	01234567
37.	Auditory Acuity 95	012345
38.	Tactual Discrimination	0123567
entre de la companya		



Profile of Human Attribute-by-Occupation

Occupation: Business Data Programmer

	Rusa	an Attributes	Rating Scale
	num	* * F * * * * * * * * * * * * * * * * *	
	<u>A.</u>	Cognitive Attribute	
	1.	Closure	01234567
	2.	Form Perception	01
	3.	Perceptual Speed	012357
	4.	Spatial Scanning	07
	5.	Spatial Orientation	07
	6.	Visualization	05557
	7.	Number Facility	01234567
	8.	Memory	01234567
	9,	Verbal Comprehension	0====1=================================
	10.	Grammar	01234557
	11.	Spelling	01234567
	1.2.	Expressional Fluency	01234567
	13,	Ideational Fluency	0123455
	14.	Sensitivity to Problems	01234567
ببا	25.	Deductive Reasoning	0123457
_	16.	Inductive Reasoning	0167
	17.	Originality	066
	18.	Social Intelligence	01231567
	19.	Aesthetic Judgment Musical Aptitude	917
	-0.	Musical Aptitude	-
	В.	Psychomotor Attribute	
			0234567
	21.	Control Precision	0 = -1 = -234 5 6 7
	22.	Multilimb Coordination	0
	23.	Reaction Time	01>234567
	24. 25.	Eye-hand Coordination Manual Dexterity	0
	26.	Finger Dexterity	0
	27.	Arm-Hand Steadiness	067
	28.	Explosive Strength	8-2-1234567
	29.	Static Strength	0
	30.	Dynamic Strength	041234567
	31.	Body Equilibrium	0
	32.	Stamina	0-4-1234567
. •			
	<u>C.</u>	Sensory Capacity Attribute	
	33.	Near Visual Acuity	012345
	34.	Far Visual Acuity	0557
	35.	Depth Perception	0
	36.	Color Discrimination	0-1-2234567
	37.	Auditory Acuity	0
	38.	Tactual Discrimination	0,



Profile of Human Attribute-by-Occupation

Occupation: General Secretary

Hum	an Attributes	Rating Scale
4 t (8211)		
<u>A.</u>	Cognitive Attribute	_
	Closure	01234567
1.	Form Perception	A 12
2.	Form Perception	A 1 2 3 4
3.	Perceptual Speed	^ 1?? <i>1//</i>
4.	Spatial Scanning	11
5.	Spatial Orientation	0 1 2 3 4 5 6 /
6.	Visualization	01233556
7.	Number Facility	2355
8.	Memory	3 3 5 6 7
9.	Verbal Comprehension	<u> </u>
LC.	Grammar	<u> </u>
11.	Spelling	^ .'1?334b====b
L2.	Expressional Fluency	
13.	Ideational Fluency	^ 1?34_ } 5===-b===
L4.	Sensitivity to Problems	A12234b555
15.	Deductive Reasoning	012
16.	Inductive Reasoning	01234556
L7.	Originality	0 1 3 4 5 6
.8.	Social Intelligence	0
19.	Aesthetic Judgment	ß6
20.	Musical Aptitude	
13	Psychomotor Attribute	t en
<u>B.</u>	1.070110110	
21.	Control Precision	0123456
22.	Multilimb Coordination	0123456
23.	Reaction Time	012356
24.	Eye-hand Coordination	03
25.	Manual Dexterity	0123456
26.	Finger Dexterity	0126
27.	Arm-Hand Steadiness	()二三二二 (二二二)
28.	Explosive Strength	0
29.	Static Strength	0
30.	Dynamic Strength	0123456
31.	Body Equilibrium	0123456
32.	Stamina	0123456
<u>c.</u>	Sensory Capacity Attribute	
,,	Mear Visual Acuity	0123456
33. 34.	Far Visual Acuity	0123==-450
	Depth Perception	011
35.	Color Discrimination	012345
36.	Auditory Acuity 97	0134
37.	Tactual Discrimination	0123456
38.	TOF FRAT DESCY THETHE PEON	

Next, profiles are constructed for the job activities within the occupation. That , again using the median scores from the data analysis of the Job Activity-by-Attribute revey Instrument, each job activity within an occupation can be constructed. For lustration purposes only, Figures 12, 13, and 14 provide an example of profiles from ree occupational areas: automotive mechanic, general secretary, and business data ogrammer. Job Activity-by-Attribute profiles provide a more comprehensive understanding attribute requirements across specific job activities within an occupation. Addionally, within the "overlay" procedure, it can be easily discerned what attributes are eded within specific activities and it can be determined what congruency can be established between the attributes required by the occupations in general and those needed for reticular job activities within the occupations. Complete Job Activity-by-Attribute offiles for each of three occupations, general secretary, automotive mechanic, and siness data programmer appear in Appendix G, H, and I.

The final procedure is to construct the profiles for the handicapped population.

e same procedure is employed to develop these profiles as is used in developing the cupation-by-Attribute and Job Activity-by-Attribute profiles. That is, obtain the raw ores from the sample population surveyed and profile the median scores. These profiled ores are then "overlayed" either on the Occupation-by-Attribute profile or on the Job-tivity-by-Attribute profiles. As indicated, the Occupation-by-Attriture profile provides

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Profile of Human Attributes for Job Activities

Occupation: Automotive Mechanic

Job Activity:

Examine vehicle and discuss with customer or automobile-repair-service salesman, automobile tester, etc., nature and extent of damage or malfunction.

Hu	man Attributes	Rating Scale
<u>λ.</u>	Cognitive Attribute	
1.	Closure	01234567
2.	Form Perception	01234567
3.	Perceptual Speed	0123-{4567
4.	Spatial Scanning	01234567
	Spatial Orientation	01234567
5.	Visualization	01234
6.		01234567
7.	Number Facility	012345
8.	Memory	01234567
9.	Verbal Comprehension	01234567
10.	Granunar	01234567
11.	Spelling , '	
12.	Expressional Fluency	012345
13.	· •	01234567
14.	Sensitivity to Problems	01234567
15.	Deductive Reasoning	01234567
16.	Inductive Reasoning	01234567
17.	Originality	01234567
18.	Social Intelligence	01234567
19.	Aesthetic Judgment	0134567
20.	Musical Aptitude	0
		· ·
В.	Psychomotor Attribute	
21.	Control Precision	01234567
22.	Multilimb Coordination	01234567
23.	Reaction Time	01234-+-567
24.	Eye-hand Coordination	01234567
25.	Manual Dexterity	01234567
26.	Finger Dexterity	01234567
27.	Arm-Hand Steadiness	01234567
28.	Explosive Strength	012
29.	Static Strength	01234567
30.	Dynamic Strength	01234567
31.	Body Equilibrium	0123567
32.	Stamina	0123-44567
<u>c.</u>	Sensory Capacity Attribute	
٤٤.	Wear Visual Acuity	01234567
34.	Mar Visual Actity	0
35.	Seption Seption	734>567
36.	or or orimination	-23
37.	Addition Acuity 100	237
914	Fire Short and the state of the	01234567

Profile of Human Attributes for Job Activities

Occupation: General Secretary

Job Activity:

Read and route incoming mail.

Numan Attributes	Rating Scale
A. Cognitive Attribute	
1 Closuva	01-234567
1. Closure 2. Form Perception	01
2. Form Perception	0125457
3. Perceptual Speed	A31
4. Spatial Scanning	0 -12345/
5. Spatial Orientation	03123456/
6. Visualization	01235/
7. Number Facility	012345
8. Memory	01234=56/
9. Verbal Comprehension	^1233 Ab5 5
10. Grammar	1
11. Spelling	01331
12. Expressional Fluency	01234567
13. Ideational Fluency	0
14. Sensitivity to Problems	0-1234567
15. Deductive Reasoning	0134567
16. Inductive Reasoning	0-2-1234567
17. Originality	01234567
18. Social Intelligence	01234567
19. Aesthetic Judgment	041234567
20. Musical Aptitude	0412
B. Psychomotor Attribute	
and the second second	0-0-1234567
21. Control Precision	022345/
22. Multilimb Coordination	012345
23. Reaction Time	0
24. Eye-hand Coordination	01
25. Manual Dexterity	01234567
26. Finger Dexterity	0126
27. Arm-Hand Steadiness	08-123456
28. Explosive Strength	0-2-123456
29. Static Strength	0123456
30. Dynamic Strength	012356
31. Body Equilibrium	0-4-13456
32. Stamina	0.4
C. Sensory Capacity Attribute	
33. Near Visual Acuity	0123456
33. Mear Visual Acuity	0
34. Far Visual Acuity	0
35. Douth Perception	0-4123456
36. Color Discrimination	013456
37. Auditory Acuity 38. Tactual Discrimination	0-4-123456



Profile of Human Attributes for Job Activities

Occupation: Business Data Programmer

Job Activity:

Analyze all or part of workflow chart or diagram representing business problem by applying knowledge of computer callities, subject matter, algebra, and symbolic logic to develop sequence of program steps.

Rating Scale Human Attributes Cognitive Attribute 0---1---3---4---5---6---7 0---1---4---3---4---5---6---7 Closure Form Perception 2, 0---1---2---3----5----5----7 Perceptual Speed 3. 0----1----2----3----4----5----6----7 4. Spatial Scanning Spatial Orientation 5. 0---1---2---3---4---5---6----7 Visual Szation 6. 0---1---2---3---4---5----6--7. Number Facility 0----1----2----3----4----5----6----7 Memory 8. 0----1----2----3----4----5----6----7 Verbal Comprehension 9. 0---1---2---3+---5---6---7 Grammar 10. 11. Spelling 0---1---2---3---4---5---6---7 12. Expressional Fluency 0----1----2----3----4----5----6----7 13. Ideational Fluency 0----1----3----4----5----6----7 Sensitivity to Problems 14. 0---1---2---3---4---5----Deductive Reasoning 15. 0----1----2----3----4----5-----6----7 Inductive Reasoning 16. 0---1---2---3---4---5---6---7 17. Originality 0---3----6---7 Social Intelligence 18. 0----1----2----3----4----5----6----7 Aesthetic Judgment 19. 0=4---1----3----4----5----6----7 20. Musical Aptitude Psychomotor Attribute 04---1----2----3----4----5----21. Control Precision 22. Multilimb Coordination -1---2---3---4---5----6----7 Reaction Time 23. <u>---</u>3----6----7 Eye-hand Coordination 24. 04---1----2----3----4----5----6----7 25. Manual Dexterity 0->--1---2---3----4----5----6----7 26. Finger Dexterity --1----5----6----7 27. Arm-Hand Steadiness 28. Explosive Strength -1----6---7 29. Static Strength .---1----2----3----4----5----6----7 30. Dynamic Strength 31. Body Equilibrium 04---1----2----3------5---32. Stamina Sensory Capacity Attribute 0----1----2----3-<u>---4</u>----5----6----7 33. Mear Visual Acuity 34. Far Visual Acuity 04---1----2----3----4----5----6----7 35. Depth Perception ---2---3----4----5----6----7 36. Color Discrimination ___1____3____4___5___6___7 37. Auditory Acuity 0---1---2---3----4---5---6---7 38. Tactual Discrimination

information on occupational requirements at a gross level, whereas the Job-Activity-by-Attribute profile provides information on occupational requirements at a specific level.

In order to make a comparison of a handicapped person's ability to demonstrate attribute requirements at either the gross or finite level, a particular handicapped person's profile is "overlayed" on either one of the two profiles. When "overlayed" on the Occupation-by-Attribute profile, it represents attribute requirements irrespective of the job activities within the occupation. When "overlayed" on the Job-Activity-by-Attribute profiles, it represents attribute requirements for specific job activities within the entire occupation.

An illustration is provided in Figures 15 through 23 for nine areas of exceptionality and include blind, partially sighted, deaf, hard of hearing, emotionally disturbed, mentally retarded, speech impaired, nonsensery physical, and learning disabled. These categories were based on the Bureau of Education for the Handicapped, Office of Education classification and represent those areas of exceptionality used in the field testing of the instruments. The profiles presented in Figures 15 through 23 are illustrations of the profiles of individual respondents used in the field testing procedures. Profiles, of course, will vary depending on the population and the area of exceptionality.

V100000 15

MEDIAN PROFILE OF ATTRIBUTE-BY-EXCEPTIONALITY

Handicapping Condition: Blind

Numan Attributes	Rating Scale
A. Cognitive Attribute `	
	01
1. Closure	J12345
2. Form Perception	0??
3. Perceptual Speed	013345
1. Spatial Scanning	.01345
5. Spatial Orientation	012 346
6. Visualization	02
7. Number Facility,	012345
6. Memory	0136
 Verbal Comprehension 	01345
0. Grammar	31336
l. Spelling	
2. Expressional Fluency	3234
3. Dideational Fluency	
1. Sensitivity to Problems	
. Deductive Reasoning	010
b. Inductive Reasoning	01236
7. Originality	01236
B. Social Intelligence	012346
9. Adsthetic Judgment	0123456
Q. Musical Aptitude	012
B. Psychomotor Attribute	0123456
1. Control Precision	01235
2. Multilimb Coordination	01235
3. Reaction Time	86
4. Eye-hand Coordination	012345
5. Manual Dexterity	012345
6. Finger Dexterity	0123456
7. Arm-Hand Steadiness	012345
8. Explosive Strength	012345
	, ()[
	^
O. Dynamic Strength	012345
0. Dynamic Strength 1. Body Equilibrium	11123456
0. Dynamic Strength 1. Body Equilibrium	0123456
O. Dynamic Strength 1. Body Equilibrium 2. Stamina	0123456
O. Dynamic Strength 1. Body Equilibrium 2. Stamina	0123456 0123456
O. Dynamic Strength 1. Body Equilibrium 2. Stamina C. Sensory Capacity Attrib	0123456 0123456
 Dynamic Strength Body Equilibrium Stamina Sensory Capacity Attrib Near Visual Woulty 	0123456 0123456
O. Dynamic Strength 1. Body Equilibrium 2. Stamina C. Sensory Capacity Attrib 3. Near Visual Woulty 4. Fuz Visual Acuity	0123456 0123456 bute
O. Dynamic Strength 1. Body Equilibrium 2. Stamina C. Sensory Capacity Attrib 3. Near Visual Mouity 4. Fuz Visual Acuity 5. Depth Perception	0123456 0123456 0123456 0123456 0123456
O. Dynamic Strength 1. Body Equilibrium 2. Stamina C. Sensory Capacity Attrib 3. Near Visual Acuity 4. Fur Visual Acuity 5. Depth Perception 6. Color Discrimination	0123456 0123456 0123456 0123456 0123456 0123456
O. Dynamic Strength 1. Body Equilibrium 2. Stamina C. Sensory Capacity Attrib 3. Near Visual Mouity 4. Fuz Visual Acuity 5. Depth Perception	0123456 0123456 0123456 0123456 0123456

FIGURE 16 -

MEDIAN PROFILE OF ATTRIBUTE-BY-EXCEPTIONALITY

INDIVIDUAL RESPONDENT

Handicapping Condition: Partially Sighted

Hur	man Attributes		Rating Scale
. A.	Cognitive Attribute		Physics of the state of the sta
<u> </u>	Cognitive Actifiate		
1.	Closuré		0134567
Ž.	Form Perception		012
. 3.	Perceptual Speed		0123467
4.	Spatial Scanning	•	0123467
5.	Spatial Orientation		0123456-
6.	Visualization		01234
Ž.	Number Facility		0123456
8.	Memory		0134567
. 9.	Verbal Comprehension	•	01234547
10.	Grammar		0123557
11.	Spelling		012345
12.	Expressional Fluency		0123457
ĩã.	Ideational Fluency	•	C123457
14.	Sensitivity to Problems		0123457
lo.	Deductive Reasoning		0123457
16.	Inductive Reasoning		01347
17.	Originality		01234367
18.	Social Intelligence		01234167
19.	Aesthetic Judgment	1	0123567
20.	Musical Aptitude	•	J1555
	· · · · · · · · · · · · · · · · · · ·		
в.	Psychomotor Attribute		
21.	Control Precision		0123467
22.	Multilimb Coordination		0123567
23.	Reaction Time		0123567
24.	Eye-hand Coordination		012345
25.	Manual Dexterity		01234567
26.	Finger Dexterity	•	012367
27.	Arm-Hand Steadiness		01234
28.	Explosive Strength		01234567
29.	Static Strength		0123467
30.	Dynamic Strength		01234567
31.	Body Equilibrium		01234567
32.	Stamina		0123567
c.	Sensory Capacity Attribu	+ 0	
<u> </u>	bendery capacity Attitibu		· ·
33.	Near Visual Acuity		0
34.	Fur Visual Acuity	•	6 1234567
Jj.	Depth Perception		03567
36.	Color Discrimination		<u> </u>
37.	Auditory Acuity		07
38.	Tuctual Discrimination		01234867
, - 			

MEDIAN PROFILE OF ATTRIBUTE-BY-EXCEPTIONALITY

INDIVIDUAL RESPONDENT

Handicapping Condition: Deaf

1(1)	man Attributes	
	Mari McCl 1200CC	Ration Scale
, <u>A.</u>	Cognitive Attribute	•
1.	Closure	01235567
· 2.	Form Perception	01234547
3.	Perceptual Speed .	01234567
4.	Spatial Scanning	0123456
5.	Spatial Orientation	0123456
6.	Visualization	013457
7.	Number Facility	013
8.	Memory	01234567
9.	Verbal Comprehension	01234567
10.	Grammar	012345
11.	Spelling	012345
12.	Expressional Fluency	01234567
13.	Ideational Fluency	0123467
14.	Sensitivity to Problems	012567
lo.	Deductive Reasoning	0134567
16.	Inductive Reasoning	01284567
17.	Originality	0123567
18.	Social Intelligence	0123567
19.	Aesthetic Judgment	0134567
20.	Musical Aptitude	07
в.	Psychomotor Attribute	
21.	Control Precision	0123456
22.	Multilimb Coordination	0
23.	Reaction Time	0123456
24.	Eye-hand Coordination	0123456
25.	Manual Dexterity	0123456
26.	Finger Dexterity	0123456
27.	Arm-Hand Steadiness	0123456
29.	Explosive Strength	0123456
30.	Static Strength	0123457
31.	Dynamic Strength	0123456
32.	Body Equilibrium Stamina	0123-456
34.	Staniina	0123456
c.	Sensory Capacity Attribute	
.13.	Near Visual Acuity	0123456
34.	Far Visual Acuity	01234563
Jā.	Jepth Perception	012345
36.	Color Discrimination	0123457
37.	Auditory Acuity	0
38.	Tactual Discrimination	012347

MEDIAN PROFILE OF ATTRIBUTE-BY-EXCEPTIONALITY

INDIVIDUAL RESPONDENT

Handicapping Condition: Hard of Hearing

Hun	wn Attributes	Rating Scale
Α	Cognitive Attribute	
•	•	01234567
1.	Closure	01234567
2.	Form Perception	01234547
3.	Perceptual Speed	012345
4.	Spatial Scanning	01234567
5.	Spatial Orientation	0134
6.	Visualization	01234547
7.	Number Facility	012345
8.	Memory	01234597
9.	Verbal Comprehension	012345
10.	Grammar	- 01234967
11.	Spelling	01234967
12.	Expressional Fluency	01234967
13.	Ideational Fluency	012345
14.	Sensitivity to Problems	0123457
lo.	Deductive Reasoning	01234
16.	Inductive Reasoning	01234567
17.	Originality	01234167
18.	Social Intelligence	0123457
19.	Aesthetic Judgment	07
20,	Musical Aptitude	07
в.	Psychomotor Attribute	
21.	Control Precision	019
22.	Multilimb Coordination	0123456
23.	Reaction Time	0123456
24.	Eve-hand Coordination	0123456
25.	Manual Dexterity	01234567
26.	Finger Dexterity	0123456
27.	Arm-Hand Steadiness	0123456
28.	Explosive Strength	0123457
29.	Static Strength	055
30.	Dynamic Strength	012355
31.	Body Equilibrium	0123456
32.	Stamina	0123457
	W 100 100 100 100 100 100 100 100 100 10	
c.	Sensory Capacity Attribute	•
33.	Wear Visual Acuity .	0123459
34.	Far Visual Acuity	0123456
35.	Jepth Perception	0123457
36.	Color Discrimination	0123456
37.	Auditory Acuity	012345
38.	Tactual Disgrimination	07



MEDIAN PROFILE OF ATTRIBUTE-BY-EXCEPTIONALITY

INDIVIDUAL RESPONDENT

Handicapping Condition: Emotionally Disturbed

Human Attributes	Rating Scale
A. Cognitive Attribute	
1. Closure	012456
2. Form Perception	012356
3. Porceptual Speed	013456
4. Spatial Scanning	01356
5. Spatial Orientation	0123466
6. Visualization	012356
7. Number Facility	01236
8. Memory	012156
9. Verbal Comprehension	0123456
10. Grammar	01236
11. Spelling	012356
12. Expressional Fluency	013456
13. Ideational Fluency	06
14. Sensitivity to Problems	0123456
lo. Deductive Reasoning	01236
16. Inductive Reasoning	016
17. Originality	0123456
18. Social Intelligence	06
19. Austhotic Judgment	0166
20. Musical Aptitude	0123455
B. Psychomotor Attribute	
21. Control Precision	0123456
22. Multilimb Coordination	0123456
23. Reaction Time	0123456
24. Eye-hand Coordination	0123456
25. Manual Dexterity	056
26. Finger Dexterity	012356
27. Arm-Hand Steadiness	0123456
28. Explosive Strength	U1234 y 6
29. Static Strength	01234
30. Dynamic Strength	01236
31. Body Equilibrium	01234
32. Stamina	012356
	A STATE OF THE STA
C. Sensory Capacity Attribute	more,
33. Mear Visual Acuity	01234567
34. Fur Visual Acuity	0123567
35. Depth Perception	0123466
, 36. Color Discrimination	01234667
37. Auditory Acuity	0123465
38. Tactual Discrimination	0123567
JAMANNE NEGAT THIRTIGATION	

MEDIAN PROFILE OF ATTRIBUTE-BY-EXCEPTIONALITY

INDIVIDUAL RESPONDENT

Handicapping Condition: Mentally Retarded

	an Attributes	Rating Scale
Α.	Cognitive Attribute	
•		066-
1.	Closure	0123456
2.	Form Perception	0123456-
3.	Perceptual Speed	0123456-
4.	Spatial Scanning	0123456-
5.	Spatial Orientation	
6.	Visualization	012346-
7.	Number Facility .	016-
8.	Memory	0
9.	Verbal Comprehension	0123456-
0.	Grammar	046-
1.	Spelling	012456-
2.	Expressional Fluency	0123456-
.3.	Ideational Fluency	06-
4.	Sensitivity to Problems	0123456-
٠.	Deductive Reasoning	0123456-
6.	Inductive Reasoning	012356-
7.	Originality	016-
8.	Social Intelligence	0123456-
9.	Aesthetic Judgment	0123456-
0.	Musical Aptitude	012356-
		•
<u>в.</u>	Psychomotor Attribute	
		0
1.	Control Precision	
1. 2.	Control Precision Multilimb Coordination	0123456-
1. 2. 3.	Control Precision Multilimb Coordination Reaction Time	0123456-
1. 2. 3. 4.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination	0123456- 0123456- 012346-
1. 2. 3. 4. 5.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity	0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity	0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness	0123456- 0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5. 6. 7.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength	0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5. 6. 7. 8.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5. 6. 7. 8.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5. 6. 7. 8. 9.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength Body Equilibrium	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5. 6. 7. 8.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
B. 1. 2. 3. 4. 5. 6. 7. 8. 9. 0.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength Body Equilibrium Stamina	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5. 6. 7. 8. 9.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength Body Equilibrium	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5. 6. 7. 8. 9.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength Body Equilibrium Stamina Sensory Capacity Attribute	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 2. 3. 4. 5. 6. 7. 8. 9. 0.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength Body Equilibrium Stamina Sensory Capacity Attribute Mear Visual Acuity	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 22. 33. 44. 55. 66. 77. 88. 99.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength Body Equilibrium Stamina Sensory Capacity Attribute Mear Visual Acuity Far Visual Acuity	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 22. 33. 44. 55. 66. 77. 88. 99.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength Body Equilibrium Stamina Sensory Capacity Attribute Wear Visual Acuity Far Visual Acuity Depth Perception	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 22. 33. 44. 55. 66. 77. 88. 90.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength Body Equilibrium Stamina Sensory Capacity Attribute Wear Visual Acuity Far Visual Acuity Depth Perception Color Discrimination	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-
1. 22. 33. 44. 55. 66. 77. 88. 99.	Control Precision Multilimb Coordination Reaction Time Eye-hand Coordination Manual Dexterity Finger Dexterity Arm-Hand Steadiness Explosive Strength Static Strength Dynamic Strength Body Equilibrium Stamina Sensory Capacity Attribute Wear Visual Acuity Far Visual Acuity Depth Perception	0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456- 0123456-

MEDIAN PROFILE OF ATTRIBUTE-BY-EXCEPTIONALITY

INDIVIDUAL RESPONDENT

Handicapping Condition: Speech Impairment

	Human Attributes	Ratin: Scale
*,:	A. Cognitive Attribute	
	1. Closure	06
	Form Perception	0123456
	3. Perceptual Speed	0123456
	4. Spatial Scanning	0123456
	Spatial Orientation	0123456
	6. Visualization .	0123456
	7. Number Facility	0123456
	8. Memory	0123456
	9. Verbal Comprehension	0123456
	10. Grammar	013456
	ll. Spelling	0123456
	12. Expressional Fluency	06
٠.	. 13. Ideational Fluency	056
	14. Sensitivity to Problems	0123456
	15. Deductive Reasoning	0123456
	16. Inductive Reasoning	0123456
	17. Originality	013456
	18. Social Intelligence	012345
	19. Aesthetic Judgment	0123456
٠.	20. Musical Aptitude	013456
n ک	B. Psychomotor Attribute	
	21. Control Precision	0123456
	, 22. Multilimb Coordination	013456
	23. Reaction Time	0123456
	24. Eye-hand Coordination	0123456
	· 25. Manual Dexterity	0123456
	26. Finger Dexterity	0123456
	27. Arm-Hand Steadiness	0123456
. 4	28. Explosive Strength	012345
	29. Static Strength	0123456 -
, inje	30. Dynamic Strength	0123456 <i>b</i>
	31. Body Equilibrium	0123456b
	32. Stamina	0123456
	C. Sensory Capacity Attribute	
٠,	33. Wear Visual Acuity .	0123456
	34. Far Visual Acuity	0123456
	J5. Depth Perception	0123456
	36. Color Discrimination	0123456
	37. Auditory Acuity	012'3456
	38. Tactual Distrimination	A

MEDIAN PROFILE OF ATTRIBUTE-BY-EXCEPTIONALITY

INDIVIDUAL RESPONDENT

Handicapping Condition: Non Sensory Physical

	Hum	an Attributes	Rating Scale
	, <u>, , , , , , , , , , , , , , , , , , </u>	Compileine Resultante	
•	A.	Cognitive Attribute	Company of the state of the sta
	· 1.	Closure	01234567
	2.	Form Perception	0123
	. 3.	Perceptual Speed	017
•	4.	Spatial Scanning	01234567
	5.	Spatial Orientation	07
	6.	Visualization	01
Y	7.	Number Facility	0
	8.	Memory	017
	9.	Verbal Comprehension	012567
	10.	Grammar	0
	11.	Spelling	0134567
•	12.	Expressional Fluency	0123567
	13.	Ideational Fluency	0134567
	14.	Sensitivity to Problems	0
200	lo.	Deductive Reasoning	013567
	16.	Inductive Reasoning	01234567
	17.	01 49 41.00 = 0 7	01234567
	18.	Social Intelligence	0123567
	19.	Aesthetic Judgment	0123457
•	20.	Musical Aptitude	()1
Un	,,	m	
53	В.	Psychomotor Attribute	
•	21.	Control Precision	01234567
: .	22.	Multilimb Coordination	013567
٠.	23.	Reaction Time	0123
	24.	Eye-hand Coordination	013567
	25.	Manual Dexterity	0134567
	26.	Finger Dexterity	0123567
	27.	Arm-Hand Steadiness	0134367
	28.	Explosive Strength	01234167
	29.	Static Strength	01234567
*	30.	Dynamic Strength .	0123567
•	31.	Body Equilibrium	012
	32.	Stamina	01
•	_	•	
1	<u>c.</u>	Sensory Capacity Attribute	
•		4	01234567
•	33.	Mear Visual Acuity	0124567
	34.	Far Visual Acuity	0123567
	35. 36.	Depth Perception Color Discrimination	012367
	37.	Auditory Acuity	0123456
	38.	Tactual Discrimination	012345
		TOT COULT DESCRIPTION FIGURE	

MEDIAN PROFILE OF ATTRIBUTE-BY-EXCEPTIONALITY

INDIVIDUAL RESPONDENT

Handicapping Condition: Learning Disabled

Human Attributes	Rating Scale
A. Cognitive Attribute	
1. Closure	
2. Form Perception	01B456
3. Perceptual Speed	0121456
4. Spatial Scanning	06
5: Spatial Orientation	012356
	. 012456
· · · · · · · · · · · · · · · · · · ·	0123456
· · · · · · · · · · · · · · · · · · ·	01256
	012456
9. Verbal Comprehension 10. Grammar	012456
	012
	012
	0121456
	012456
- · · · · · · · · · · · · · · · · · · ·	012356
	0123456
16. Inductive Reasoning	0121456
17. Originality	0123456
18. Social Intelligence	012456
19. Austhetic Judgment	012
20. Musical Aptitude	012
B. Psychomotor Attribute	
21. Control Precision	0181567
22. Multilimb Coordination	01284567
23. Reaction Time	012567
24. Eye-hand Coordination	0134567
25. Manual Dexterity	0134567
26. Finger Dexterity	014567
27. Arm-Hand Steadiness	0134567
28. Explosive Strength	0121567
29. Static Strength	0121567
30. Dynamic Strength	012
31. Body Equilibrium	01214
32. Stamina	01234567 01214567
	7
C. Sensory Capacity Attribute	
33. Wear Visual Acuity	0
34. Fur Visual Acuity	0123567
. Jo. Depth Perception	0123557
36. Color Discrimination	0124567
37. Auditory Acuity	01567
38. Tactual Discrimination	01234567











